FIG.1

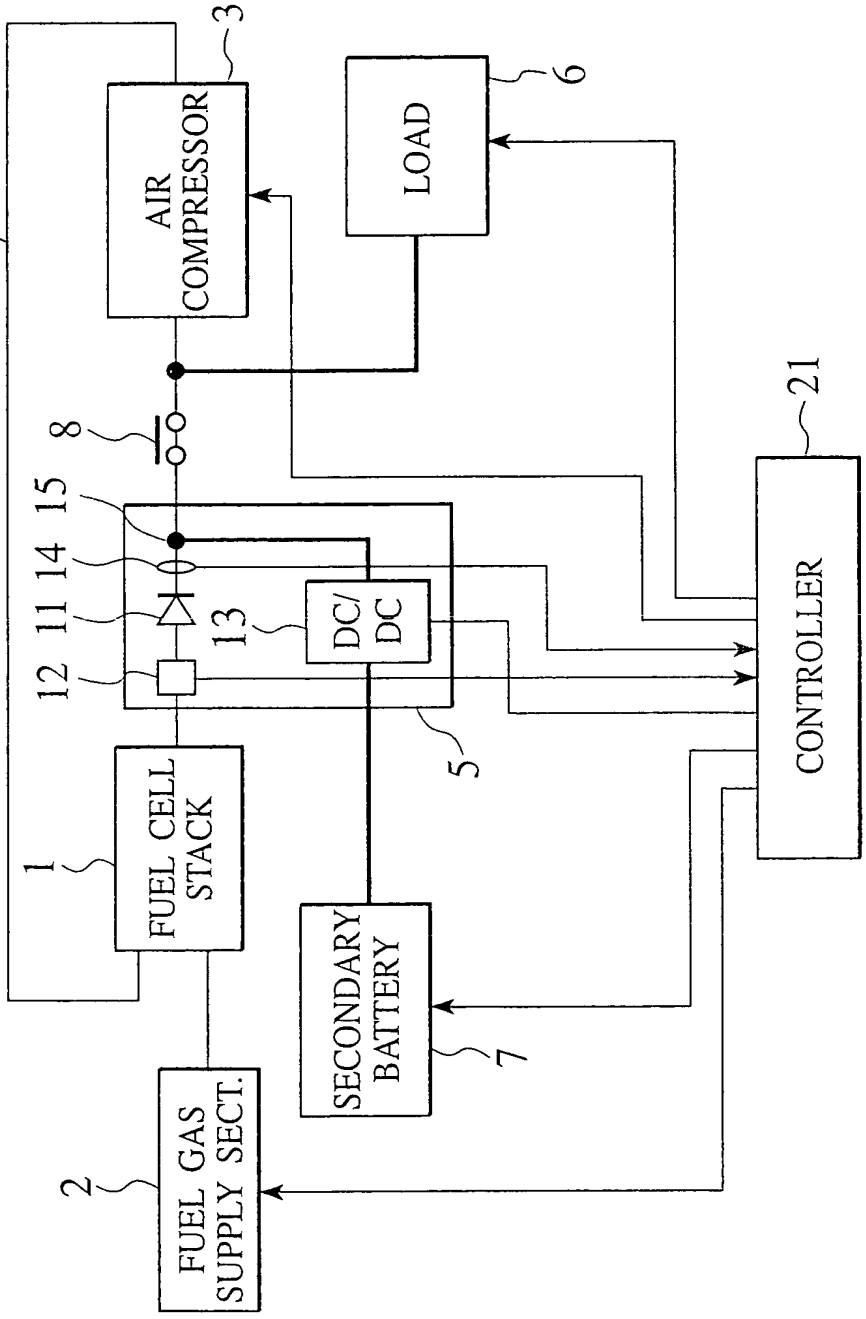

AIR COMPRESSOR
3
LOAD
6
4
8
15
14
11
12
13
DC/DC
21
CONTROLLER
5
FUEL CELL STACK
1
SECONDARY BATTERY
7
FUEL GAS SUPPLY SECT.
2

FIG.2

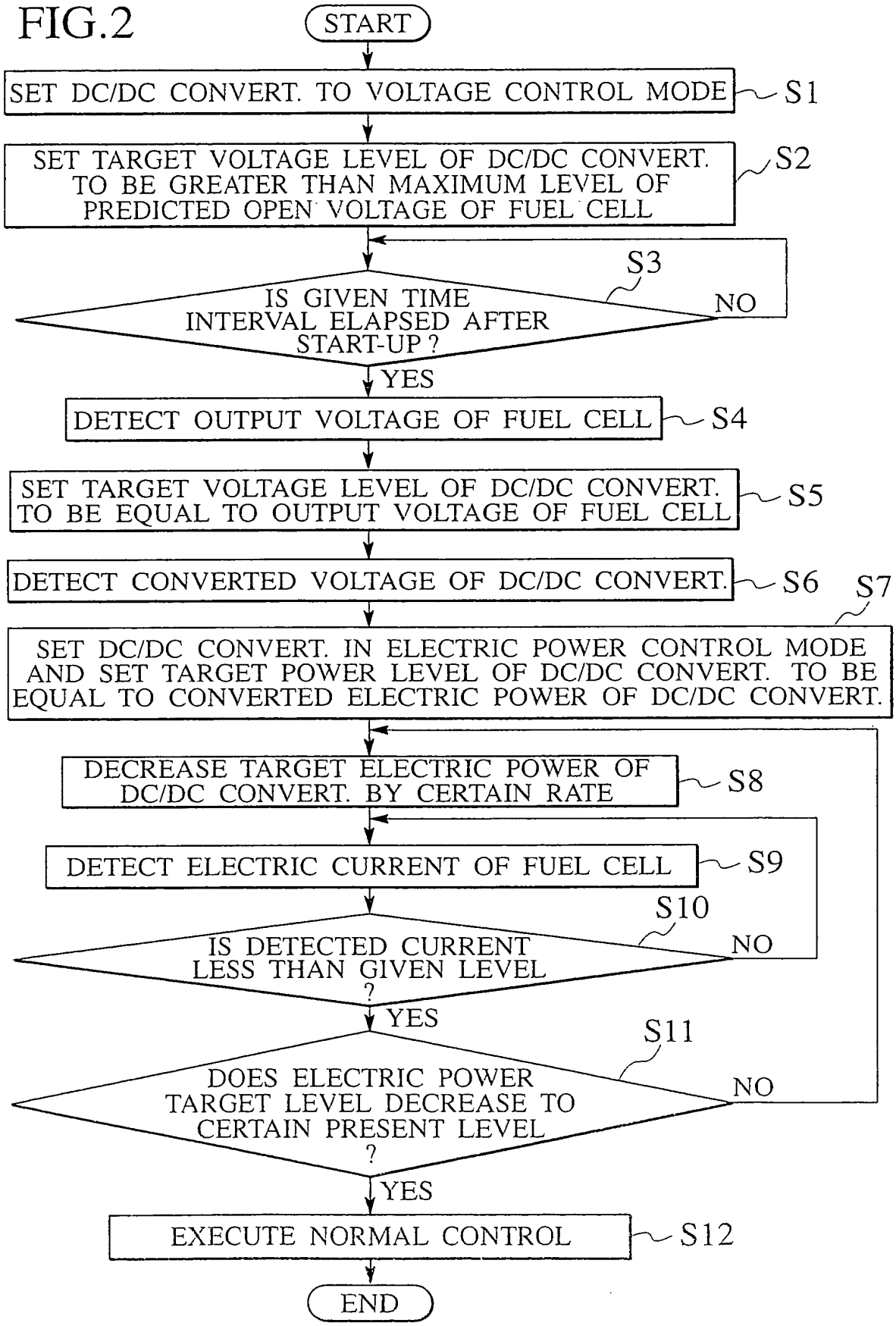

START
SET DC/DC CONVERT. TO VOLTAGE CONTROL MODE
S1
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE GREATER THAN MAXIMUM LEVEL OF PREDICTED OPEN VOLTAGE OF FUEL CELL
S2
S3
IS GIVEN TIME INTERVAL ELAPSED AFTER START-UP ?
NO
YES
DETECT OUTPUT VOLTAGE OF FUEL CELL
S4
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE EQUAL TO OUTPUT VOLTAGE OF FUEL CELL
S5
DETECT CONVERTED VOLTAGE OF DC/DC CONVERT.
S6
S7
SET DC/DC CONVERT. IN ELECTRIC POWER CONTROL MODE AND SET TARGET POWER LEVEL OF DC/DC CONVERT. TO BE EQUAL TO CONVERTED ELECTRIC POWER OF DC/DC CONVERT.
DECREASE TARGET ELECTRIC POWER OF DC/DC CONVERT. BY CERTAIN RATE
S8
DETECT ELECTRIC CURRENT OF FUEL CELL
S9
S10
IS DETECTED CURRENT LESS THAN GIVEN LEVEL ?
NO
YES
S11
DOES ELECTRIC POWER TARGET LEVEL DECREASE TO CERTAIN PRESENT LEVEL ?
NO
YES
EXECUTE NORMAL CONTROL
S12
END

FIG.3

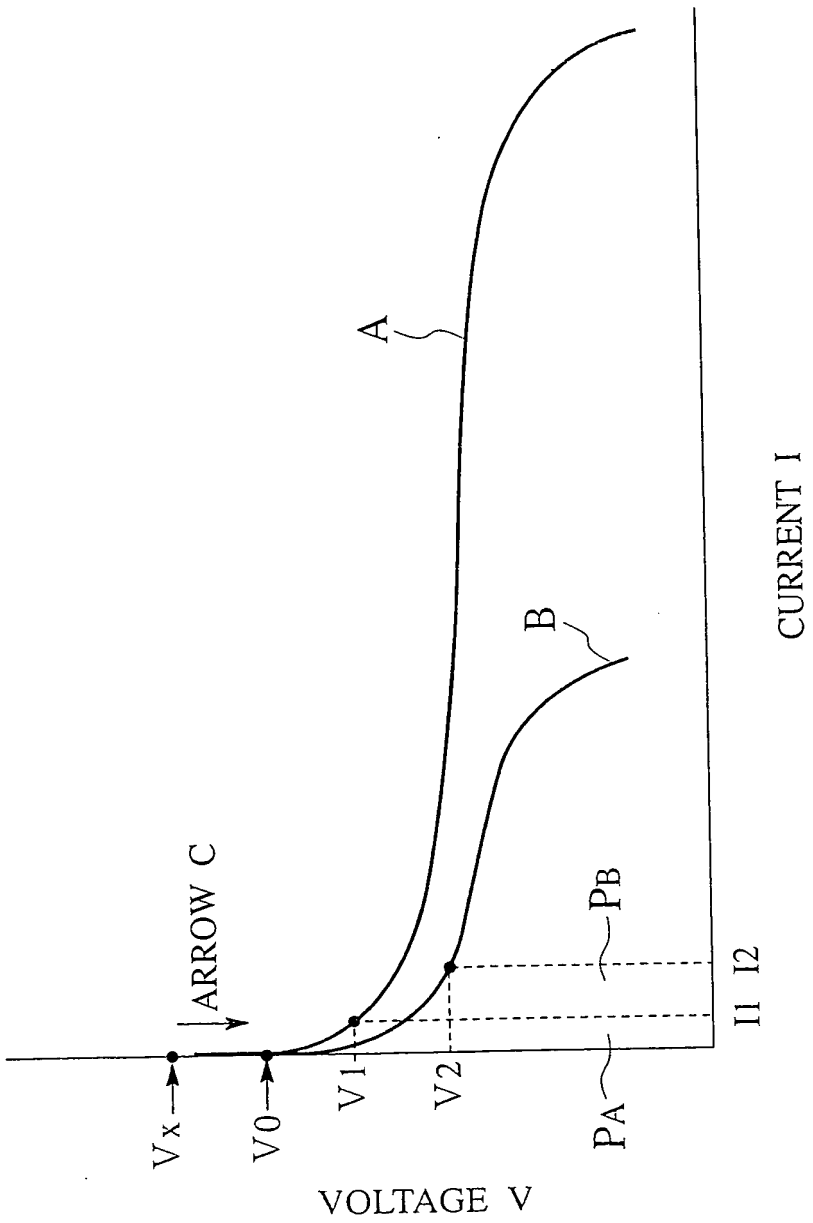


FIG.4

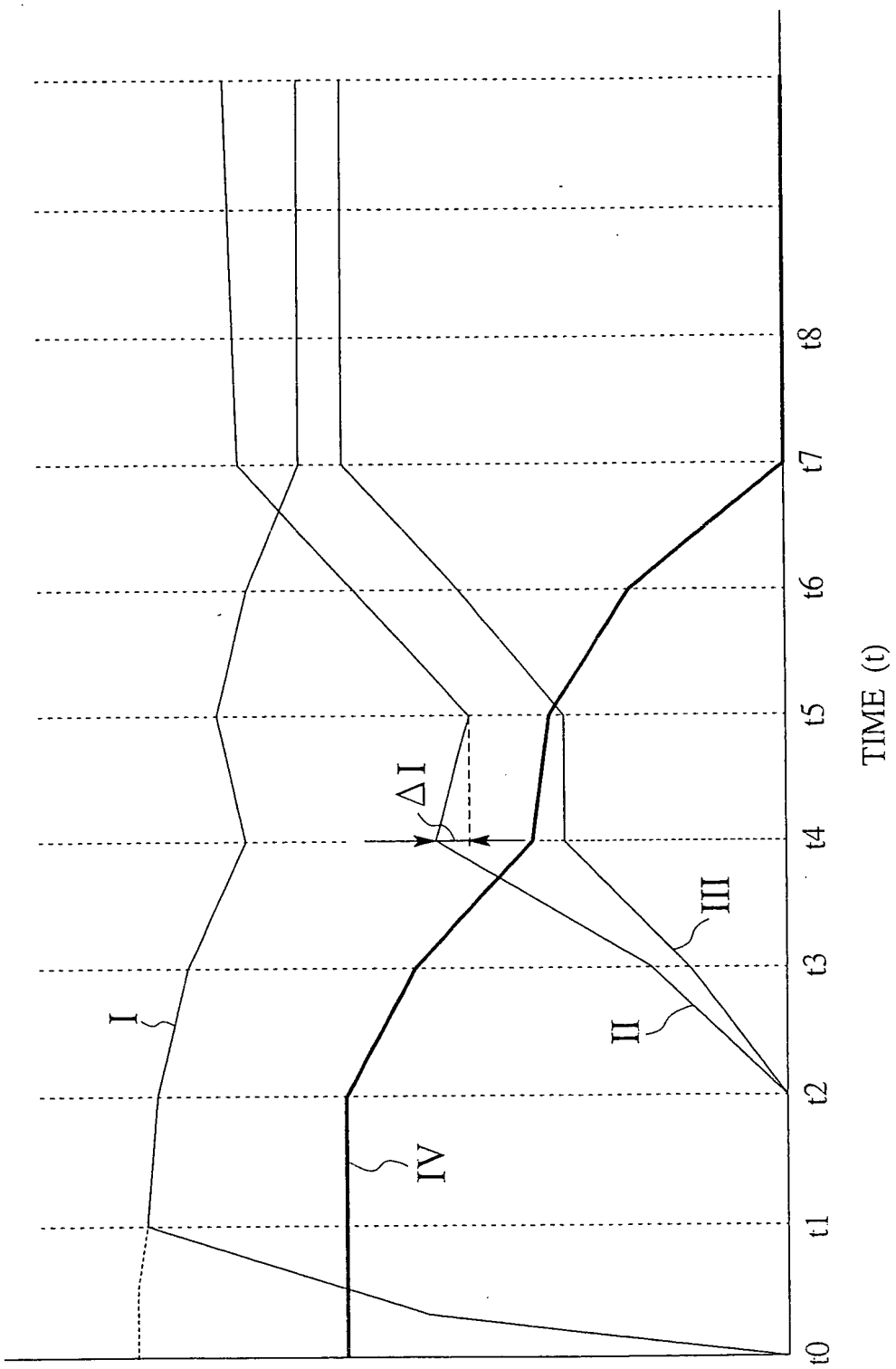


FIG.5

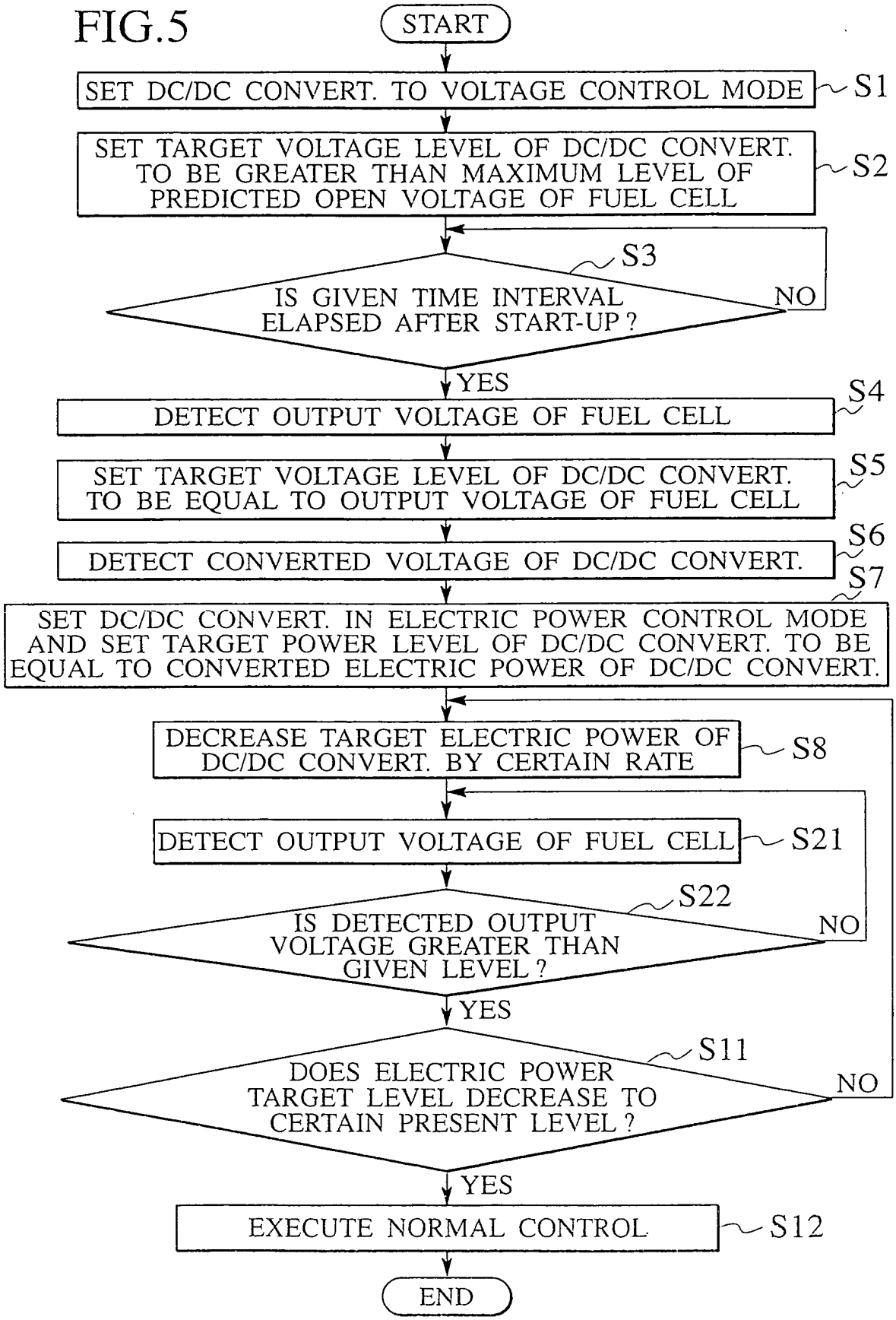

START
SET DC/DC CONVERT. TO VOLTAGE CONTROL MODE
S1
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE GREATER THAN MAXIMUM LEVEL OF PREDICTED OPEN VOLTAGE OF FUEL CELL
S2
S3
IS GIVEN TIME INTERVAL ELAPSED AFTER START-UP ?
NO
YES
DETECT OUTPUT VOLTAGE OF FUEL CELL
S4
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE EQUAL TO OUTPUT VOLTAGE OF FUEL CELL
S5
DETECT CONVERTED VOLTAGE OF DC/DC CONVERT.
S6
S7
SET DC/DC CONVERT. IN ELECTRIC POWER CONTROL MODE AND SET TARGET POWER LEVEL OF DC/DC CONVERT. TO BE EQUAL TO CONVERTED ELECTRIC POWER OF DC/DC CONVERT.
DECREASE TARGET ELECTRIC POWER OF DC/DC CONVERT. BY CERTAIN RATE
S8
DETECT OUTPUT VOLTAGE OF FUEL CELL
S21
S22
IS DETECTED OUTPUT VOLTAGE GREATER THAN GIVEN LEVEL ?
NO
YES
S11
DOES ELECTRIC POWER TARGET LEVEL DECREASE TO CERTAIN PRESENT LEVEL ?
NO
YES
EXECUTE NORMAL CONTROL
S12
END

FIG.6

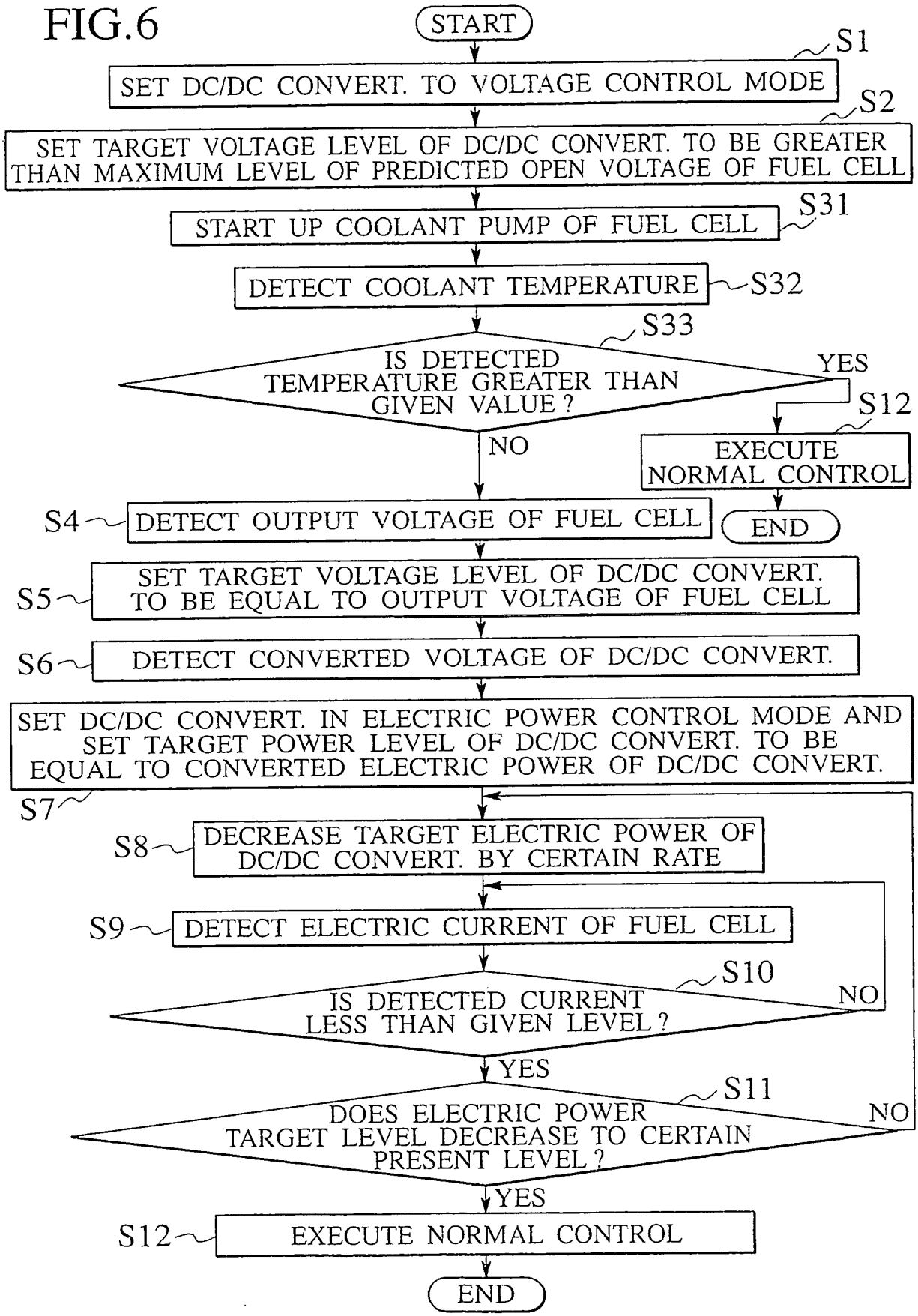
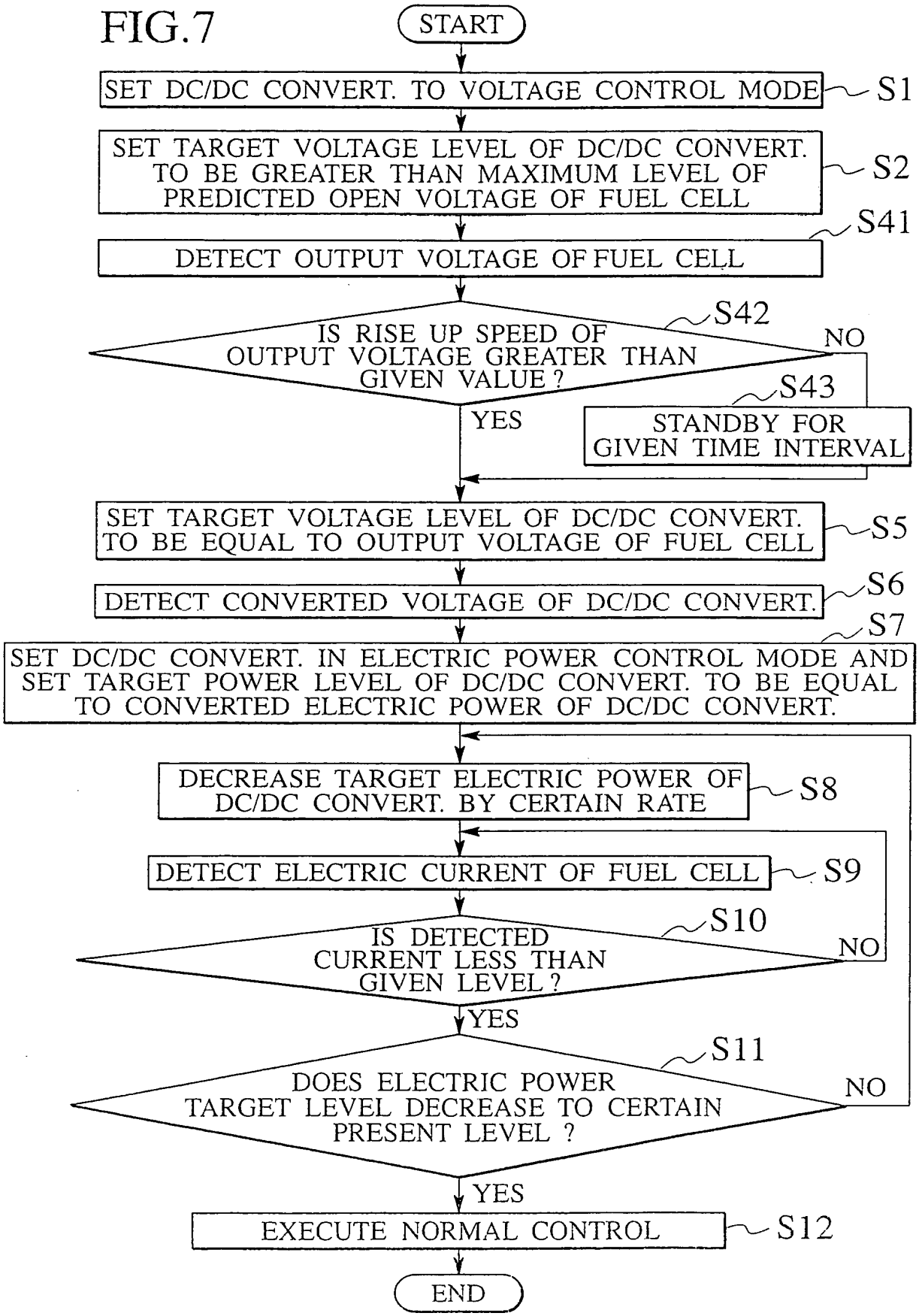

START
S1
SET DC/DC CONVERT. TO VOLTAGE CONTROL MODE
S2
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE GREATER THAN MAXIMUM LEVEL OF PREDICTED OPEN VOLTAGE OF FUEL CELL
S31
START UP COOLANT PUMP OF FUEL CELL
S32
DETECT COOLANT TEMPERATURE
S33
IS DETECTED TEMPERATURE GREATER THAN GIVEN VALUE ?
YES
S12
EXECUTE NORMAL CONTROL
END
NO
S4
DETECT OUTPUT VOLTAGE OF FUEL CELL
S5
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE EQUAL TO OUTPUT VOLTAGE OF FUEL CELL
S6
DETECT CONVERTED VOLTAGE OF DC/DC CONVERT.
S7
SET DC/DC CONVERT. IN ELECTRIC POWER CONTROL MODE AND SET TARGET POWER LEVEL OF DC/DC CONVERT. TO BE EQUAL TO CONVERTED ELECTRIC POWER OF DC/DC CONVERT.
S8
DECREASE TARGET ELECTRIC POWER OF DC/DC CONVERT. BY CERTAIN RATE
S9
DETECT ELECTRIC CURRENT OF FUEL CELL
S10
IS DETECTED CURRENT LESS THAN GIVEN LEVEL ?
NO
YES
S11
DOES ELECTRIC POWER TARGET LEVEL DECREASE TO CERTAIN PRESENT LEVEL ?
NO
YES
S12
EXECUTE NORMAL CONTROL
END

FIG.7


START
SET DC/DC CONVERT. TO VOLTAGE CONTROL MODE
S1
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE GREATER THAN MAXIMUM LEVEL OF PREDICTED OPEN VOLTAGE OF FUEL CELL
S2
DETECT OUTPUT VOLTAGE OF FUEL CELL
S41
IS RISE UP SPEED OF OUTPUT VOLTAGE GREATER THAN GIVEN VALUE ?
S42
NO
YES
STANDBY FOR GIVEN TIME INTERVAL
S43
SET TARGET VOLTAGE LEVEL OF DC/DC CONVERT. TO BE EQUAL TO OUTPUT VOLTAGE OF FUEL CELL
S5
DETECT CONVERTED VOLTAGE OF DC/DC CONVERT.
S6
SET DC/DC CONVERT. IN ELECTRIC POWER CONTROL MODE AND SET TARGET POWER LEVEL OF DC/DC CONVERT. TO BE EQUAL TO CONVERTED ELECTRIC POWER OF DC/DC CONVERT.
S7
DECREASE TARGET ELECTRIC POWER OF DC/DC CONVERT. BY CERTAIN RATE
S8
DETECT ELECTRIC CURRENT OF FUEL CELL
S9
IS DETECTED CURRENT LESS THAN GIVEN LEVEL ?
S10
NO
YES
DOES ELECTRIC POWER TARGET LEVEL DECREASE TO CERTAIN PRESENT LEVEL ?
S11
NO
YES
EXECUTE NORMAL CONTROL
S12
END